Problem

Traveling Salesman Problem (beginner-2025)

- Points: 100
- Time limit: 1s
- Special TL: 2s
- Max Memory: 256mb

There are N cities numbered from 1 to N, the i-th of which is at coordinates (x_i, y_i).

Busy Beaver wants to start at city 1, visit every city exactly once, and return to city 1.

To go from city i to city j, it takes $|x_i - x_j + y_i - y_j|$ seconds. Find the minimum number of seconds for Busy Beaver to complete his trip.

Input Format

The first line contains a single integer T ($1 \le T \le 10^4$) — the number of test cases.

The first line of each test case contains a single integer N ($2 \le N \le 2 \cdot 10^5$) — the number of cities.

The i-th of the next N lines of each test case contains two integers x_i and y_i ($-10^9 \le x_i, y_i \le 10^9$) — the coordinates of the i-th city.

The sum of N across all test cases does not exceed $2 \cdot 10^5$.

Output Format

For each test case, output a single integer — the minimum number of seconds needed for Busy Beaver to complete his trip.

Sample Input

```
3
5
0 0
-2 0
1 2
-1 3
0 1
3
0 0
1 4
3 4
2
-1 9
8 -4
```

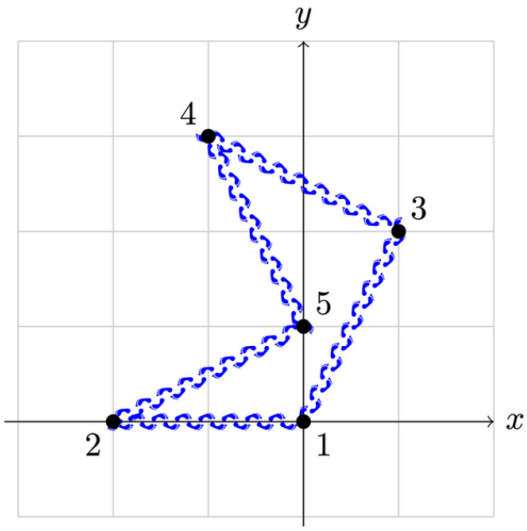
Sample Output

```
10
14
8
```

Sample Explanation

Sample Explanation

In the first test case, we can take the path $1 \xrightarrow{3 \text{ seconds}} 3 \xrightarrow{1 \text{ seconds}} 4 \xrightarrow{1 \text{ second}} 5 \xrightarrow{3 \text{ seconds}} 2 \xrightarrow{2 \text{ seconds}} 1$ which takes $3 + 1 + 1 + 3 + 2 = 10$ seconds.




```
1  Write your code here
```

C++17

Submit!

Submissions